

Xiangting Li

Department of Computational Medicine, UCLA
Los Angeles, California, USA

Phone: +1 213-469-8476

Email: xiangting.li@ucla.edu

Education

- 2020-Present PH.D. (EXPECTED) IN COMPUTATIONAL MEDICINE, UCLA
Dissertation Title: “Stochastic Models of Cellular Processes: Molecular Interactions, Information, and Evolution”
Advisor: Tom Chou
- 2023-06-13 DOCTORAL ADVANCEMENT TO CANDIDACY, UCLA
- 2023-03-24 MASTER OF SCIENCE IN BIOMATHEMATICS, UCLA
- 2020 BACHELOR IN INTEGRATED SCIENCE, Peking University, Beijing, China

Research Areas

Stochastic processes, DNA-protein interactions, multiscale analysis, nonequilibrium statistical physics.

Skills

Analysis: stochastic analysis, matrix analysis, eigenvalue analysis, perturbation theory, first-passage time calculation, dynamical systems, equilibrium and nonequilibrium statistical physics, differential manifolds.

Numerics: stochastic simulation, Monte Carlo methods, spectral methods, numerical linear algebra, numerical optimization, neural ODEs, neural SDEs, statistical inference.

Programming Languages: Python, Julia, MATLAB, L^AT_EX.

Publications

PREPRINTS

- 2024 **Xiangting Li**, Tom Chou, “Reliable ligand discrimination in stochastic multistep kinetic proof-reading: First passage time vs. product counting strategies,” [arXiv:2402.04547](https://arxiv.org/abs/2402.04547) (2024). Accepted by *PLoS Computational Biology*.
- 2024 Mingtao Xia, **Xiangting Li**, Qijing Shen, Tom Chou, “Squared Wasserstein-2 Distance for Efficient Reconstruction of Stochastic Differential Equations,” [arXiv:2401.11354](https://arxiv.org/abs/2401.11354) (2024).

2023 Mingtao Xia, **Xiangting Li**, Tom Chou, “Population overcompensation, transients, and oscillations in age-structured Lotka-Volterra models,” *arXiv:2303.00864* (2023).

PUBLISHED WORK

2024 Mingtao Xia, **Xiangting Li**, Qijing Shen, Tom Chou, “Learning unbounded-domain spatiotemporal differential equations using adaptive spectral methods,” *Journal of Applied Mathematics and Computing* (2024).

2023 **Xiangting Li**, Tom Chou, “Stochastic nucleosome disassembly mediated by remodelers and histone fragmentation,” *Journal of Chemical Physics* 159.20 (2023).

2023 **Xiangting Li**, Sara Habibipour, Tom Chou, Otto O. Yang, “The role of APOBEC₃-induced mutations in the differential evolution of monkeypox virus,” *Virus Evolution* 9.2 (2023): veado58.

2023 Jiawei Ding^{*}, **Xiangting Li**^{*}, Jiangchuan Shen, Yiling Zhao, Shuchen Zhong, Luhua Lai, Hengyao Niu, and Zhi Qi, “ssDNA accessibility of Rad51 is regulated by orchestrating multiple RPA dynamics,” *Nature Communications* 14.1 (2023): 3864.

2023 **Xiangting Li**, Tom Chou, “Stochastic dynamics and ribosome-RNAP interactions in transcription-translation coupling,” *Biophysical Journal* 122.1 (2023): 254-266.

Talks

2024-03-07 APS March Meeting 2024 (W38.00009), Stochastic nucleosome disassembly mediated by remodelers and histone fragmentation, Minneapolis, Minnesota.

2024-01-03 JMM 2024 (AMS Special Session on Mathematics of DNA and RNA), The role of APOBEC₃-induced mutations in the differential evolution of monkeypox virus, San Francisco, California.

2023-10-10 ICSB 2023 (Dyn. 15), Population overcompensation, transients, and oscillations in age-structured Lotka-Volterra models, Hartford, Connecticut.

2023-03-06 APS March Meeting 2023 (Do8.00003), Stochastic dynamics and ribosome-RNAP interactions in Transcription-Translation Coupling, Las Vegas, Nevada.

Teaching

2024 spring Teaching Assistant, Computational & Systems Biology 150: “Biological Modeling: Mathematical and Computational Approaches”

Awards & Honors

2024–2025	Dissertation Year Award at UCLA
2021–2023	University fellowship at UCLA
2020	Peking University Weiming Scholar
2016	Peking University Freshman Scholarship

Last updated: June 5, 2024